

ATOMIC ENERGY *newsletter*®

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

February 22nd, 1955
Vol. 13 ... No. 1

Dear Sir:

The first U.S. privately-financed nuclear power electric utility will be Consolidated Edison Company's (N.Y.C.) plant which the firm plans to erect near Peekskill, N.Y., H. R. Searing, president, Con Edison, told the Joint Congressional Committee on Atomic Energy in Washington last fortnight. Mr. Searing said his firm is conducting negotiations with three firms that can build a nuclear reactor: General Electric, Westinghouse Electric, and Babcock & Wilcox. The most attractive proposal for a 100,000 to 200,000 kw reactor has come from Babcock, he said, in that "it combines a demonstrated and conservative technique with a substantial advance in the fuel element, producing an overall result which Con Edison hopes will be reasonably competitive with conventional plants in the utility's area"..... The British Government last fortnight announced that 12 electric power plants, using nuclear reactors as the heat source, will be constructed in Britain in the next ten years. Total output was estimated at 1,400,000 to 2,000,000 kw., with construction costs set at £300,000,000. Two stations are to be started about the middle of 1957, with completion estimated for 1960-61, and the building of two others set for 1958-59. Construction of four more stations might begin in 1960, and another four some 18 months later. The White Paper, in the announcement, said the U.K. Atomic Energy Authority's experimental work had shown that the gas-cooled thermal reactor could produce electricity at a figure competitive with coal. The plants will be built by private industry, and costs borne by the British Electricity Authority just as would the costs of regular generating stations.

The first sale of heavy water to a country outside the North American continent is now being made to the Government of India, the USAEC said in Washington last fortnight. India had made the request since the material was needed for the nuclear reactor for research it plans to erect near Bombay; the U.S. will supply ten tons of the heavy water.

The first nuclear detonation of the current test series underway at the USAEC's test site seventy miles north of Las Vegas, Nev., occurred there last Saturday. It was the 33rd such explosion on the American continent, and was dropped from an aircraft, exploding at an altitude of 1,000-1,500-ft. In a report last week the USAEC stated that the area contaminated by radioactive fall-out from the thermonuclear (hydrogen) weapon exploded at Bikini atoll on Mar. 1, 1954 extended over 7,000-sq. miles. The Commission asserted that such tests were necessary for proper understanding of thermonuclear weapons. It also said that the total radiation received by each person in the U.S., from all nuclear explosions to date, including the British and Russian tests, was about what one received "from one chest X-ray". And in Britain last fortnight Defense Minister Harold Macmillan said Britain had solved the research problems of building thermonuclear weapons, and would now proceed with development and production.

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ATOMIC ENERGY BUSINESS REPORTS...

SITE PURCHASED FOR EXPERIMENTAL LABORATORY:- An 1100-acre site near Pawling, N.Y., has now been bought by Nuclear Development Associates, White Plains, N.Y., as a site for experimental work. A subsidiary corporation of Nuclear Development known as Southern Dutchess Corp. was set up to acquire and hold the area. (Nuclear Development Assoc. was one of the pioneer nuclear engineering firms in the U. S. Its work also embraces other fields. Of particular interest is its work on methods of converting salt water to water which may be used for industrial and domestic purposes. Working under a U.S. government contract, it has reported the least expensive method so far of all U.S. firms working on this important effort. President of Nuclear Development is J.R. Menke. Most recent financing has been provided by David and Laurance Rockefeller, who acquired an interest in the firm).

NUCLEAR MATERIALS FIRM HAS NEW HEAD:- New head of Nuclear Metals, Inc., Cambridge, Mass., is now Dr. Bruce S. Old. (Dr. Old had been head of Cambridge Corp. until Carrier Corp. purchased full control from Arthur D. Little, Inc. of that firm; this LETTER 2/8/55, p. 3.). Nuclear Metals, Inc., is an organization established by Arthur D. Little, Inc., Cambridge engineering and research concern, and Alleghany Ludlum Steel Corp., Pittsburgh. It has been functioning as contractor operator of the USAEC's metallurgical research laboratory at Cambridge since mid-1954. The laboratory had been established in 1942 as part of the U.S.'s war-time atomic energy program. It had been managed from 1942 through mid-1954 by Mass. Instl. of Technology. Research there is on those pure metals necessary for nuclear work; uranium, beryllium, zirconium, etc. and on certain alloys for such work.

CONTRACT FOR NUCLEAR REACTOR OBTAINED BY FIRM:- A contract has now been given General Electric Co., Schenectady, N.Y., for installation of a nuclear reactor by Washington State College, Pullman, Wash. The contract states that G-E will prepare specifications and drawings for a nuclear reactor for the College based on the USAEC's "swimming pool" type reactor; aid in the preparation of the hazards summary report which is necessary before the College will be permitted by the USAEC to operate the reactor (since the USAEC will loan the fissionable material for the reactor); and assist the College in designing buildings and structures required for the operation. The reactor, which will be located 25-feet under water in a pool approximately 12-ft. wide, 25-ft. deep, and 30-ft. long, will use as solid fuel uranium-235. It will produce large quantities of neutrons for research in engineering; biology; agriculture; nuclear physics; and medicine. Harold M. Dodgen is director of the nuclear reactor project for the College.

UNITED KINGDOM CHEMICAL FIRM SUPPLYING ATOMIC ENERGY PROJECT THERE:- What it termed a "substantial contract" has now been obtained by Imperial Smelting Corp., Ltd., to supply over the next two years anhydrous hydrofluoric acid for the U. K. Atomic Energy Authority. Imperial Smelting, a subsidiary of Consolidated Zinc Corp., Ltd., says that for the past three years it has been supplying the bulk of the authority's requirements of this acid.

ADDITIONAL FIRMS TO BE ALLOWED ACCESS TO U.S. ATOMIC DATA:- Last fortnight a spokesman for the USAEC told the Joint Congressional Committee (Atomic) in Washington that new study agreements it will shortly announce will allow more firms to enter the atomic field: (a) Commercial agreements, to allow access to large segments of data for those actually engaged in commercial atomic work, and (b) Access agreements, which are more limited in scope than (a), above. These will supplement the present study arrangements, for those firms which have been investigating the potentialities of atomic energy. (They are made possible by the Atomic Energy Act (1954) which provides so-called "L" clearances, permitting material of a less-secret nature to be reviewed, after less investigation of the individual to whom the "L" clearance is granted. Formerly a "Q" clearance, which requires more investigation of the individual than the "L" type, would have been necessary.)

NEW BOOKS & OTHER PUBLICATIONS...in the nuclear field...

Atomic Energy & Its Applications, by J.M.A. Lenihan. Subjects covered include military, medical, industrial and scientific applications of nuclear power and its by-products; detection and measurement of radiation; nuclear reactions; protection from radiation; particle accelerators and nuclear reactors; fundamentals of nuclear structure and radioactivity; etc. 265 pages. --Sir Isaac Pitman & Sons, Ltd., London (Eng.) (22s. 6d.)

Nuclear Notes for Industry: Feb. 7, 1955. Guide to USAEC-developed information of industrial interest. --USAEC, Oak Ridge, Tenn. (n/c).

The Earth's Envelope of Space, by Jacob Kessler. A technical paper of interest in connection with the author's booklet "You and the Atom". 33 pages. --I. Kessler, 264-10 Langston Ave., Glen Oaks, L.I., N.Y.

High Energy Radiation of Polymers. A literature review by S.L. Eisler, U.S. Arsenal, Rock Island, Ill., 15 pages. (50¢)..... Study of the Contamination Potential of Polonium Static Eliminators, by L.B. Silverman and F.A. Bryan, Univ. of Calif., Los Angeles. 11 pages. (20¢)..... Studies on Flash Burns: Protective Qualities of Fabrics, by G. Mixter, Jr., Univ. of Rochester. (Microfilm, \$2.00; Photography, \$2.75). -- Office of Technical Services, Wash. 25, D.C.

NOTES:- An illustrated loose-leaf manual has now been prepared by Abbott Laboratories (Dep't. of Radioactive Pharmaceuticals), North Chicago, Ill., as a source of technical information for those currently using, or desiring to use, radioisotopes in medical diagnostic procedures. The manual may be obtained on request to Abbott at North Chicago..... A new list of U.S. government publications, entitled "Nuclear Fission", written in popular style, may be obtained from Sup't. of Documents, Wash. 25, D. C.

ATOMIC ENERGY FINANCIAL REPORTS...

INTEREST IN NUCLEAR EQUIPMENT FIRM ACQUIRED:- A "substantial investment" in Landsverk Electrometer Co., Glendale 4, Calif., has now been made by Don L. Collins, who has now become a member of that firm with the position of vice-president. The firm, founded and headed by Dr. O.G. Landsverk, specializes in the manufacture of instruments for the measurement of radioactivity. It is one of the few companies in the field which is wholly owned by the management. Mr. Collins, who now joins Landsverk, has been technical director of Victoreen Instrument Co. since 1946, and prior to that was chief of the instrument section of the Manhattan District, the World War II predecessor to the USAEC.

FINANCING PROVIDED FOR CANADIAN URANIUM ORE PRODUCER:- Rio Tinto Co., Ltd., British mining company with wide connections, has now underwritten 100,000 shares of Algom Uranium Mines, Ltd. (properties in the Blind River district, Ontario) at \$11 (Canadian) a share, payable any time up to March 15, 1955. Rio Tinto will also buy \$25 million in 5% Algom debentures. The debentures have stock purchase warrants allowing holders to buy by March 1, 1959, 40 shares of Algom per \$1,000 debenture at \$11 per share. For arranging the debenture purchase, Rio Tinto will get a non-assignable stock purchase warrant allowing it to buy 500,000 shares of Algom at \$11 per share, exercisable up to Mar. 1, 1959. (The agreement is based on a letter of intent from Eldorado Mining & Refining, the Canadian government official purchasing agent, which calls for delivery by Algom of \$209,910,000 worth of uranium oxide concentrates over a period of about five years.)

RAW MATERIALS...prospecting, mining, & marketing...

UNITED STATES:- Indicative of its production volume was a royalty payment of \$26,117.29 made last fortnight by Consolidated Uranium Co., Inc., Utah, to the state, for a uranium mine Consolidated operates under lease on Utah school lands in San Juan County. This was the largest single royalty payment the state had ever received; it was for the quarter ending Dec. 31, 1954..... A "substantial" uranium deposit has been blocked out at its Los Ochos mine (embracing some 322 claims) in the Cochetopa Pass area, Thornburg Mining Co. now reports..... Climax Uranium Company and William J. Carey, (an independent oil operator of Dallas, Tex.) have now entered into a joint exploration and development contract under which Carey agrees to spend between \$125,000 and \$150,000 drilling core holes on claims owned by Climax.

NEW PRODUCTS, PROCESSES & SERVICES...in the nuclear field...

NEW PRODUCTS:- Model 181 decade scaler, designed for use with Geiger-Muller or scintillation detectors, is said to have a five microsecond resolving time, permitting very precise measurements of radioactivity. When it is so used (with either G-M or scintillation detectors) the instrument is recommended by the manufacturer for use in medical diagnosis and therapy; in qualitative or quantitative work in radiochemistry; in routine monitoring work; and for other radiation counting applications. --Nuclear Instrument and Chemical Corp., Chicago 10, Ill.

Model L-7 shielded isotope container, which provides one inch of lead shielding throughout, is designed to permit the safe carrying of radioisotopes in hospital or laboratory. Inside opening is $1\frac{1}{2}$ " in diameter, by 4" deep; means are provided for safely lifting "hot" material out of the container, as well as a lock to safeguard the contents..... Model B-1800R instrument combination provides both a completely automatic scaler and a count rate meter in one cabinet. The scaler incorporates a linear amplifier and discriminator, preset time or count controls, two built-in timers, regulated high voltage, and choice of scaling factors up to 128. (Either scintillation, Geiger, or proportional counters can be used.) The rate meter has full scale ranges of 5 to 10,000 counts per second. --NRD Instrument Co., St. Louis 14, Mo.

Special nuclear track (NTA) film packets ($1\frac{1}{2}$ " x 1-5/8") are now being supplied by this manufacturer in cartons of 150 packets. Designed to be worn in personnel film badges, neutron exposure is measured by revealing the individual tracks of protons originating from either fast or thermal neutrons. --Eastman Kodak Co., Rochester, N.Y.

NOTES:- Price changes in isotopes as supplied by primary government sources include phosphorous-32 plaques, (available from Oak Ridge National Laboratory, Tenn.) increased in price from \$40 to \$55. The Laboratory states this is due to increased cost of fabrication and increased standard irradiation charges. Oak Ridge also advises that it expects soon to have cobalt-60 available with a specific activity between 61 and 71 curies per gram. Price will be \$14 per curie, after the first two curies at \$50 per curie. Compressed cesium-137 pellets, consisting of compressed cesium chloride, are a new form of this isotope now being supplied by Oak Ridge. Activities from 5 to 150 curies per pellet are available. A fabrication charge of \$250 per pellet is added to the regular price for this radioisotope.

A pamphlet describing its air-and jeep-borne radioactivity surveying equipment (for oil and uranium prospecting) is now available from Tracerlab, Inc., Boston 10, Mass. A catalog and price list, entitled "Irradiation Services", has recently been issued by Argonne National Laboratory, P.O. Box 299, Lemont, Ill., giving detailed information on the irradiation facilities of Argonne's reactors and cyclotron.

NEW SERVICES:- A uranium exploration service is now being offered by the firm of Research, Inc., Dallas, Tex. The firm states its uranium service is an outgrowth of "a decade of experience in the kindred fields of petroleum exploration". Air-and-truck-borne geological and radiometric surveys, as well as detailed radiometric surveys are services available from this company.

RESEARCH NOTES:- Cortisone has been found to have a protective effect on the skin of guinea pigs subjected to a damaging dosage of X-radiation, according to L.E. Houghton, M.D., and his associates at Harefield Hospital, Middlesex, England. Using 6,000 r as the radiation dose, the 19 control animals in the experiment showed severe persistent ulceration, while such ulceration was completely absent in the 19 test animals given cortisone parentally. Aside from its clinical applications, cortisone's protective action is important because it provides a method of blocking X-ray damage, the investigators state. They note that this protective action may be extended to the area of tissue damage resulting from exposure to nuclear fission products because of the similarity in tissue effects. (Associated with Dr. Houghton, of Harefield Hospital, in this work, were Dr. J. B. Walter, of Middlesex Hospital, and D.E.A. Jones, of Mount Vernon Hospital.)

ATOMIC PATENT DIGEST...latest grants for nuclear materials & devices...

GRANTS TO PRIVATE ORGANIZATIONS AND/OR INDIVIDUALS:- Apparatus for measuring gamma ray intensities. Utilizes several gamma ray counters, which are exposed to the ionizing radiation, with a single means for recording the sum of the amplified pulses of these counters. U.S. Pat. No. 2,701,312 issued Feb. 1, 1955; assigned to The Texas Company, New York, N.Y. (Inventor: A. H. Lord, Jr.; address of record, Houston, Tex.)

Process of arc melting zirconium to produce a sound, dense ingot of substantially pure zirconium. An arc at about 20-volts d.c. is passed between two electrodes, in an inert atmosphere, with one of the electrodes (consumable) made of the substantially pure zirconium metal and containing between 0.02 and 1.0 percent by weight of a volatilizable metal of higher vapor pressure than the zirconium. U.S. Pat. No. 2,702,239 issued Feb. 15, 1955, to H.L. Gilbert, A.D. Cavett and W.E. Brennan II. Inventors' addresses of record: first two named, Corvallis, Ore., last named, Albany, Ore.

TRADE-MARK ISSUED:- Trade-mark SN 626,953 is now to be issued (Mar. 8, 1955) to The Ohmart Corp., Cincinnati, Ohio. The mark is a fanciful representation of the Ohmart cell which produces electrical energy directly from nuclear energy. The registration covers the use of the mark on Ohmart products: radiation detecting and measuring instruments, weighing machines, liquid level gauges, accelerometers, temperature measuring instruments, thickness measuring instruments, apparatus for measuring X-ray dosage, and for analyzing the composition of gas.

GRANTS TO GOVERNMENT ORGANIZATIONS:- Ion source. Apparatus for the ionizing of atoms of a gaseous material by bombardment of these atoms with an electric arc. U. S. Pat. No. 2,700,107 issued Jan. 18, 1955; assigned to United States of America (USAEC). (Inventor: J. S. Luce; address of record, Oak Ridge, Tenn.)

Polarity indicator. Essentially a reading device for recorded magnetic signals, consisting of a magnetic pick-up head and associated electronic circuitry. U. S. Pat. No. 2,700,149 issued Jan. 18, 1955; assigned to United States of America (USAEC). (Inventor: J. S. Stone, Jr.; address of record, Clinton, Tenn.)

Production of vanadium metal. The process of preparing massive ductile vanadium metal from technical grade vanadium pentoxide containing 87-93% of vanadium pentoxide, 5-6% of sodium oxide, and less than 1% of other impurities. U. S. Pat. No. 2,700,606 issued Jan. 25, 1955; assigned to United States of America (USAEC). (Inventors: H.A. Wilhelm and J.R. Long; addresses of record, Ames, Iowa).

Method and apparatus for measuring radiation quantities, utilizing a fluid in which hydrochloric acid is produced upon exposure to such radiation. The quantity of the acid produced is a measure of the quantity of radiation to which the fluid has been exposed. U. S. Pat. No. 2,700,736 issued Jan. 25, 1955; assigned to United States of America (USAEC). (Inventor N.O. Roberts; address of record, Liverpool, Eng.)

INDUSTRIAL APPLICATIONS...of radioactive materials...

A method using radioactive sand to provide information about the movement of tides and silt beds, so that waterways could be better cleared of silt, has now been developed by Isotope Development, Ltd. (England), working with the U.K. Atomic Energy Authority. To make the radioactive sand, a glass was first made of scandium oxide and other ingredients. The glass was then ground until the grains were the same size as the natural sand where the experiments were to be performed. It was then irradiated in a nuclear reactor at Harwell, where the scandium was converted into the radioactive isotope scandium-46. The sand was then mixed with mud, and placed into the bed of the Thames river. A careful two-week examination with underwater radiation detectors, and a check on banks in the Thames estuary, showed just where the material had been borne along, in a manner similar to the way the natural sand and silt had been moved.

Sincerely,

The Staff,
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